

Notice of Allowability

Application No.

10/090,755

Examiner

Shouxiang Hu

Applicant(s)

KOYAMA ET AL.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the 03-24-04 amendment.
2. ☒ The allowed claim(s) is/are 1, 5, 7, 10 and 16-18.
3. ☒ The drawings filed on 06 March 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20040524
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Shouxiang Hu

SHOUXIANG HU
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kevin M. McKinley (RN: 43,794) on May 24, 2004.

The application has been amended as follows:

IN THE CLAIMS

1. (Currently Amended) A light emitting device having a substrate and a light-emitting section provided on the substrate, and emitting light in a direction intersecting the substrate,
wherein the light-emitting section includes a first side and a second side in a direction parallel to a surface of the substrate, and comprises:
a light-emitting layer in which light is generated by electro-luminescence;
an electron transport layer and a hole transport layer with said light-emitting layer sandwiched therebetween;
~~an electrode used to apply electric charges to the light-emitting layer,~~
~~wherein the electrode includes a first electrode formed of a~~ first pair of electrode layers used to apply electrons to the light-emitting layer through said electron transport layer,

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wherein one of the first pair of electrode layers is formed on the first side of the light-emitting section and the other of the first pair of electrode layers is formed on the second side of the light-emitting section; and a second electrode formed of a pair of electrode layers used to apply holes to the light-emitting layer through said hole transport layer, wherein one of the second pair of electrode layers is formed on the first side of the light-emitting section and the other of the second pair of electrode layers is formed on the second side of the light-emitting section; and

first and second dielectric multi-layered films between which the light-emitting layer is interposed, wherein a first gate electrode is disposed in the first dielectric multi-layered film ~~includes a first gate electrode~~, and a second gate electrode is disposed in the second dielectric multi-layered film, ~~includes a second gate electrode~~; and

wherein the first and second pairs of electrode layers are disposed to avoid overlap with ~~at least part of~~ a light-emitting region in the light-emitting layer, as viewed from a the light emitting direction.

2. (Canceled)

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3. (Canceled)

4. (Canceled)

5. (currently amended) The light emitting device as defined in claim 2_1,
wherein the first pair of electrode layers are is disposed on an upper one
side of the light-emitting layer and the second pair of electrode layers are is disposed on
a lower ~~the other~~ side of the light-emitting layer, in the direction intersecting the
substrate.

6. (Canceled)

7. (currently amended) The light emitting device as defined in claim 1;
wherein a wavelength band of a light reflected on the first and second
dielectric multi-layered films is included in a wavelength band of a light generated in the
light-emitting layer.

8. (Canceled)

9. (Canceled)

10. (Currently Amended) A light emitting device comprising:
a substrate;
a light-emitting layer in which light is generated by electro-luminescence;
first and second dielectric multi-layered films between which the light-
emitting layer is interposed in a direction intersecting the substrate, wherein a first gate
electrode is disposed in the first dielectric multi-layered film, ~~includes a first gate~~
~~electrode and~~ a second gate electrode is disposed in the second dielectric multi-layered
~~film includes a second gate electrode;~~

at least a first electric charge transport layer disposed on ~~one~~ an upper side of the light-emitting layer and a second electric charge transport layer disposed on a lower ~~the other~~ side of the light-emitting layer, in the direction intersecting the substrate;

a first ~~electrode formed of a pair of electrode layers~~ used to apply first electric charges to the light-emitting layer through said first charge transport layer, wherein one of the first pair of electrode layers is formed on a first side of the light-emitting section layer, and the other of the first pair of electrode layers is formed on a second side of the light-emitting section layer, in a direction parallel to a surface of the substrate; and

a second ~~electrode formed of a pair of electrode layers~~ used to apply second electric charges to the light-emitting layer through said second charge transport layer, wherein one of the second pair of electrode layers is formed on the first side of the light-emitting section layer and the other of the second pair of electrode layers is formed on the second side of the light-emitting section layer,

wherein the first and second pairs of electrodes layers are disposed to avoid overlap with ~~at least part of~~ a light-emitting region in the light-emitting layer, as viewed from a light emitting direction; and

wherein the type of said first electric charges is opposite to that of said second electric charges.

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11. (Canceled)
12. (Canceled)
13. (Canceled)
14. (Canceled)
15. (Canceled)
16. (Previously Presented) A display device using the light emitting device as defined in claim 1.
17. (Original) An electronic instrument using the display device as defined in claim 16.
18. (Previously Presented) An electronic instrument using the light emitting device as defined in claim 1.

Allowable Subject Matter

Claims 1, 5, 7, 10 and 16-18 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
May 25, 2004



SHOUXIANG HU
PRIMARY EXAMINER